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10/750,106	12/30/2003	Richard J. Strnad		2129

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EXAMINER
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BARTON, JEFFREY THOMAS

ART UNIT	PAPER NUMBER
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1795

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 5-7 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 15 August 2007.
2. Applicant has cancelled all claims elected in the reply of 15 August 2007. However, new claims 8-13 correspond to the elected invention (i.e. a thermoelectric device), and these will be examined herein.
3. This application contains claims 5-7 drawn to an invention nonelected with traverse in the reply filed on 15 August 2007. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
5. Claims 8-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the

invention. There is no teaching of how one can prepare a thermoelectric generator formed of a single type of thermoelectric material as claimed. As shown in Figures 1 and 6 and described in the specification Page 10, lines 23-29, the instant thermoelectric generators have two types of thermoelectric material, p- and n-type.

6. Claims 8-10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Regarding claims 8-10, there is no teaching of a thermoelectric generator formed of a single type of thermoelectric material as claimed. As shown in Figures 1 and 6 and described in the specification Page 10, lines 23-29, the instant thermoelectric generators have two types of thermoelectric material.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 9-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 9 and 10, there is no basis in the specification as filed for determining what is meant by “a first type of generator” or “a second type of generator”, rendering these claims indefinite. Any generator meeting the other limitations of the claims are considered to meet the limitations of these claims.

Regarding claims 11-13, there is no antecedent basis for "the first type" recited in line 2 of claim 11. In addition, the recitation, "sequentially alternating and only adjacent electrodes being connected together" in lines 5-6 of claim 11 is indefinite. The Examiner is unable to determine what limitation is intended by this recitation.

In addition, claim 13 recites "a second polarity" without earlier recitation of a "first polarity" in the claim, making it unclear whether a first polarity is required within the generator.

### ***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 8-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitchell.  
(US 3,601,887)

Regarding claim 8, Mitchell discloses a cylindrical thermoelectric generator (Figures 1-3) comprising first electrodes centrally positioned within a cylinder (Bridging ring members 48); second electrodes peripherally positioned around the cylinder (Bridging ring members 56). (Column 6, lines 4-38) Note that the thermoelectric materials 52 and 54 correspond to the instant cylinder. In Example 1, Mitchell teaches that both p- and n-type thermoelectric materials can be lead telluride (Column 9, lines 49-58), which meets the limitation to "a single type of thermoelectric material" in that all

thermoelectric materials are lead telluride. Function of the devices in either Peltier or Seebeck mode is disclosed by Mitchell at Column 7, lines 1-19.

Regarding claims 9 and 10, the device of Mitchell is a generator. (Column 7, lines 1-15) In the absence of any disclosure of what is "a first type of generator" or "a second type of generator", this is sufficient to meet the limitations of these claims.

Regarding claim 11, bridging ring members 48 read on a first cylinder electrode of a first type, while bridging ring members 56 read on a second cylinder electrode of a second type. Insofar as the meaning of the remaining limitations can be understood, the disposition of these electrodes in the structure of Figure 3 reads on "sequentially alternating", and adjacent electrodes are connected together via the thermoelectric rings 52 and 54.

Regarding claims 12 and 13, the electrodes 48 and 56 have polarities in operation (e.g. the electrodes at either end of the series sequence of thermoelectric elements shown in Figure 3), which meets the limitations of the claims.

### ***Response to Arguments***

11. Applicant's arguments filed on 05 December 2007 have been fully considered but they are not persuasive.

Applicant submits that claims 8-13 are in full compliance with 35 U.S.C. §112. The Examiner respectfully disagrees, for the reasons given in the rejections under 35 U.S.C. §112 above.

Applicant argues that Mitchell does not disclose that presently claimed invention. Regarding the limitation to a device comprising “a single type of thermoelectric material”, Applicant has not taught how to prepare such a device in the instant specification. As is seen throughout the prior art and Applicant’s specification, thermoelectric devices require two thermoelectric materials to function, typically n- and p-type thermoelements. (Note e.g. Instant figure 6 and Page 1, lines 23-29 of the instant specification, as well as figure 3 of Mitchell) In addition, Mitchell is taken to meet this limitation, broadly recited, since the reference discloses lead telluride n- and p-type elements as cited above.

Applicant further asserts that the limitations of claim 11 are not met by Mitchell. As far as the indefinite limitations of claim 11 can be interpreted, the Examiner considers the Mitchell reference to teach structures according to the claim, as described above.

Applicant’s description of the disclosure of Mitchell (i.e. hot compressing step and plastic deformation) is completely unrelated to the claim limitations, and the corresponding arguments are therefore not persuasive.

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Jeffrey T. Barton whose telephone number is (571)272-1307. The examiner can normally be reached on M-F 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nam X Nguyen/  
Supervisory Patent Examiner, Art  
Unit 1753

JTB  
21 February 2008